ASTRONOMICAL SOCIETY OF LONDON.

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A PAPER was read, entitled "Approximate Places of Double Stars in the Southern Hemisphere, for 1827, as observed at Paramatta, N. S. Wales. By Mr. James Dunlop."

After the departure of Sir T. M. Brisbane from the colony of New South Wales, the author, finding himself in the possession of reflecting telescopes capable of adding considerably to our knowledge of the nebulæ and double stars of that portion, resolved to remain, for the purpose of making a general survey of the heavens, from the south pole to 30° of south declination. The dark nights, in the absence of the moon, were devoted to observations of the nebulæ, and the moonlight to those of double stars, of which however only a part could be subjected to exact micrometrical measurement. The apparatus employed for this purpose consisted of a 46-inch achromatic telescope, equatorially mounted, and furnished with two micrometers; — one a parallel line micrometer, the author's own workmanship; the other, a double image micrometer, on Amici's principle. Those which could not be micrometrically measured, had their positions and distances [illegible] by estimation while passing the field of the 9-feet reflector, with which they were discovered in the sweeps for nebulæ, and their places are given as determined in the sweeps.

The author prefaces his catalogue with the details of the micrometrical measures of about 30 principal Southern double stars, the most remarkable of which are *α Crucis* and *α Centauri*, the former bearing a great resemblance, both in the magnitudes and the mutual distance of its individuals, to *Castor;* the latter being a star of the first magnitude, accompanied by one of the fourth, at about 20″ distance,— a remarkable combination, such as does not occur in our hemisphere.

A Catalogue of 254 double stars, arranged in order of right ascension, follows, in which the right ascension to seconds of time, and declination to the nearer minute of space,— the position, quadrant, distance, the differences of right ascension and declination when observed, and the magnitudes, are set down in separate columns. They comprise double stars of all classes and of every variety. One very remarkable is the star 1 k *Argus*, Æ 8^h 4^m, declin. — 42° 7′, which consists of individuals of the sixth and eighth magnitudes, the large star being blue, and the small one dusky red. This affords almost the only instance known of a combination of two considerably bright stars differing decidedly in mag-

nitudes, where a marked excess of the less refrangible rays enters into the composition of the light of the smaller star, and of the more refrangible into that of the larger. Among the double stars is set down also one of the seventh magnitude, right ascension $1^h\ 19^m\ 43^s$, declin. $-33°\ 31'$, of that singular deep red purple colour, of which examples are not wanting in our own hemisphere.

An extract of a letter was read from Professor Harding, of Göttingen, to Dr. Tiarks, in which he alludes to a phenomenon which had recently been observed by several astronomers on the continent, relative to an inequality of the dark space between the body of Saturn and its ring. This appearance was first noticed by M. Schwabe, on December 21, 1827, and has since been confirmed by several persons to whom M. Harding had communicated the circumstance. It seems that the space on the eastern side of the planet appears larger than the space on the western side. M. Harding was at first inclined to treat the whole as an optical deception, till the fact was confirmed by others, when he was induced to attempt an explanation of the phenomenon. He endeavoured to account for it by the present position of Saturn; but the result of his calculation proved that that cause would not increase the space (in March) more than $\frac{1}{8}$; a quantity probably too small to become perceptible to the eye. He indeed imagined that the appearance might be caused by the shadow of the body, which at present falls much beyond the south-eastern part of the ring, and which might render it impossible to perceive the equality of the two spaces. But this, he says, is disproved by the observation of M. Schwabe who saw the same phenomenon on the 31st of December, three weeks before the opposition, when the shadow was on the western side, and could be but faintly discerned. M. Harding is unable to explain it as an optical deception, and yet cannot consider it in any other light at present. Actual measurement, he says, can alone decide the question. He has already written to M. Struve to take some measures with his powerful telescope, and he requests that this communication may, with the same view, be forwarded to Messrs. Herschel and South, who have the best means, in this country, of determining this singular phenomenon.

Mr. South then read a note, which he had annexed to the above communication, stating, that in compliance with M. Harding's wishes, Mr. Herschel and himself had directed their attention to Saturn, but that they did not detect any inequality in the two spaces above alluded to, by means of micrometers attached to his 5-feet equatorial. The mean of 35 measures, taken on April 26, April 29, and May 8, gave the preceding (or western) space $3''{\cdot}532$, and the following (or eastern) space $3''{\cdot}607$. At the same time he remarks, that the mean of 20 measures taken on April 26 (viz. 10 by Mr. Herschel and 10 by himself), gave the spaces precisely the same; each being $3''{\cdot}472$. Mr. Herschel's measures gave the preceding (or western) space $3''{\cdot}612$, and the following (or eastern) space $3''{\cdot}442$; whilst his own gave the former $3''{\cdot}331$, and the lat-

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M. Harding also alludes in his letter to the re-appearance of the variable star in the constellation *Serpens*, mentioned in No. 5 of the Society's monthly notices. He says it is now again become visible, and has already attained the 8th or 9th magnitude. Its position for the beginning of this year is

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